

REMARKS

Reconsideration of this application, as amended, is respectfully requested.

Claims 1-12, 27 and 28 are pending. Claims 1-12, 27 and 28 stand rejected.

Claims 1 – 3, 7 – 9, 27, and 28 have been amended. Claims 29 and 30 have been added.

Support for the amendments is found in the specification, the drawings, and in the claims as originally filed. Applicants submit that the amendments do not add new matter.

Rejections Under 35 U.S.C. § 112

The Examiner has rejected claims 27 and 28 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The Examiner has stated that

The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no original disclosure to support these limitations. The only disclosed “contact media” are found on page 8 of the specification and do not include refrigerated coils or tubes.

(p. 2, Office Action 121704)

Applicants respectfully submit that there is support for the limitation of the contact media being refrigerated coils or tubes. Claims 27 and 28 as previously presented seemed to indicate that the contact media was tower packing that consisted of refrigerated coils or tubes. Applicants have amended claims 27 and 28 to properly depend from claims 1 and 7, respectively. Support for the limitation that the contact media may be refrigerated coils or tubes is found on page 5 of the specification at paragraph 3.

Rejections Under 35 U.S.C. § 103(a)

Claims 1, 2, 6-8, 12, 27 and 28 stand rejected under 35 U.S.C. § 103 as being unpatentable over European Patent No. 0,766,050 of St. Louis (“St. Louis”) in view of Japanese Patent No. 59-74617 of Shimazaki (“Shimazaki”) in further view of U.S. Patent No. 5,584,183 of Wright et al. (“Wright”).

The Examiner has rejected claims 1, 2, 6-8, 12, 27 and 28 under 35 U.S.C. § 103 as being unpatentable over St. Louis in view of Shimazaki in further view of Wright. The Examiner has stated that

EP '050 discloses a contactor 10 having spray nozzles 64 for fluid, inlet 53 and 50 for air, packing 65, a heater 68 and an outlet for liquid attached to pump 18. Water in the tower 10 is treated by a chiller as disclosed in col. 9, lines 1-7 and claim 13, penultimate paragraph, and Fig. 3, block 59. temperatures sensors 27 and 29 perform the same functions as the temperature sensors claimed, by applicant, before and after the heater. Filters are shown at 40 and 48.

(p. 2-3, Office Action 12/17/04)

Applicants respectfully submit, however, that amended claim 1 is not obvious under 35 U.S.C. § 103 in view of St. Louis and Shimazaki and Wright. Amended claim 1 includes the following limitations.

A system for controlling the temperature and humidity of gas, comprising:
a contactor, including contact media, a gas inlet and a gas outlet, a liquid inlet and a liquid outlet, wherein the liquid inlet admits a liquid above the contact media and the gas inlet admits gas below the contact media, and the liquid and gas flow external to the contact media such that the gas leaves through the gas outlet in saturated state;
a heater;
a chiller for chilling the liquid;
a gas outlet line connecting the gas outlet to the heater;
a liquid outlet line connecting the liquid outlet to the chiller, wherein the liquid flows through the liquid inlet, the contactor, the liquid outlet and the chiller;
a saturated temperature sensor associated with the gas outlet line and upstream of the heater;
a dry bulb temperature sensor associated with the gas outlet line and downstream of the heater;
a gas temperature set point; a relative humidity set point; and
a controller, including a computer, coupled to the saturated temperature sensor, the dry bulb temperature sensor, the gas temperature set point, the relative humidity set point, and the computer, wherein the saturated temperature sensor, the relative humidity set point, and the gas temperature set point are inputs to the computer to produce a command signal adjusting the cooling rate of the chiller, wherein the dry bulb temperature sensor and the gas temperature set point are inputs to the computer to produce a command signal adjusting the heating rate of the heater, wherein the controller adjusts the heater and the chiller to deliver the gas from the heater at a desired temperature and relative humidity; and
a sprinkler above the contact media and within one inch of the contact media to distribute the liquid uniformly on the contact media;
a gas outlet at least four inches above the sprinkler;

a duct coupled to the gas outlet having a heater and a blower, the duct coupled to a diffuser box, the diffuser box having a sloped wall and coupled to a filter such that gas exiting from the diffuser box through the filter is uniformly distributed.

(Amended claim 1) (emphasis added).

In contrast, neither St. Louis nor Shimazaki nor Wright, alone or in combination, disclose the sprinkler, gas outlet and duct as claimed. Applicants further respectfully submit that the combination of the other cited references No. JP 08-005131 of Watanabe et al. (Watanabe), U.S. Patent No. 4,044,078 of Curtis et al. (“Curtis”), U.S. Patent No. 3,533,607 of Powers (“Powers”), U.S. Patent No. 5,086,829 of Asakawa (“Asakawa”), U.S. Patent No. 4,951,738 of Litzberg (“Litzberg”) or U.S. Patent No. 4,333,887 of Goettl (“Goettl”) remedy this defect.

Given that claim 7 includes similar limitation and that claims 2 – 6, 27, and 29 and claims 8 – 12, 28, and 30 depend from claims 1 and 7, respectively, applicants respectfully submit that claims 2 – 12 and 27 – 30 are, likewise, not rendered obvious by any of the cited references alone or in combination one with another.

Applicants have amended claims 1 and 7 to remove the limitation of the chiller including a refrigeration system and a heat exchanger, the heat exchanger including a matrix of thermal electric chips disposed between two plates. This limitation is now included as new claims 29 and 30. In regard to new claims 29 and 30, applicants respectfully disagree that such limitation is rendered obvious by the cited references including Wright.

Wright discloses that

Many types of industrial equipment require liquid cooling or heating during their operation. Typical examples include semiconductor process equipment, pharmaceutical and biotechnology fermentation/separation vats, machine tools, air conditioners, plastic molding/extrusion equipment, analytical equipment, welding equipment, and lasers. One common way to provide the required cooling or heating is with a recirculating coolant

temperature control unit, or chiller. A typical chiller consists of a freon-based refrigeration loop connected to a recirculating coolant loop via a heat exchanger. However, as the world community becomes increasingly concerned about ozone depletion and global warming, a replacement for the standard freon-based refrigeration technology is urgently needed. Thermoelectric technology offers a clean, environmentally-friendly, solid state alternative.

(Wright, Col. 1, lines 12-27).

Nowhere in Wright is it suggested that the heat exchanger be employed in the manner as claimed. The other cited references, alone or in combination, likewise make no such suggestion.

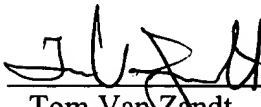
It would be impermissible hindsight based on applicants' own disclosure to incorporate Wright into the other cited references. Moreover, such a combination would still lack the limitations of the sprinkler, gas outlet and duct as claimed.

It is also respectfully submitted that MaComb does not teach or suggest a combination with Shimazaki, Wright, Watanabe, Curtis and Goettl and that Shimazaki does not teach or suggest a combination with MaComb, Wright, Watanabe, Curtis and Goettl and that Wright does not teach or suggest a combination with MaComb, Shimazaki, Watanabe, Curtis and Goettl and that Watanabe does not teach or suggest a combination with MaComb, Shimazaki, Wright, Curtis and Goettl and that Curtis does not teach or suggest combination with Shimazaki, MaComb, Wright, Watanabe and Goettl and Goettl does not teach or suggest a combination with Macomb, Shimazaki, Wright, Watanabe and Curtis.

It is respectfully submitted that in view of the amendments and arguments set forth herein, the applicable rejections and objections have been overcome. If there are any additional charges, please charge Deposit Account No. 02-2666 for any fee deficiency that may be due.

Respectfully submitted,

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